STRATEGY RESEARCH PROJECT

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THE DIVISION G6 — STRATEGIC SIGNAL LEADERSHIP FOR INFORMATION SUPERIORITY IN THE ARMY AFTER NEXT

BY

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The Division G6 - Strategic Signal Leadership for Information Superiority in the Army After Next

A STRATEGIC RESEARCH PAPER

by

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ABSTRACT

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No longer facing a single global military threat, the U.S. Army is undergoing profound change as it evolves towards a full-dimension strategic land force for the 21st Century. In the process, the Army is reviewing its organizational structures to adapt to the envisioned global environment and regional battlefields of the Army After Next (AAN). This new Army will leverage the exponential growth in digital information and information systems technologies to successfully execute future missions. Central to this restructuring is the Army's premier warfighting organization—the Division. How should divisions be structured to face unprecedented challenges in the future? This study discusses the role of a new principal staff officer— the Division G6— as a strategic planner and integrator of command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) systems in the AAN. It concludes that establishment of a principal staff element at the division level for all matters of C4ISR systems integration is essential to leveraging information age technologies for the warfighter and providing the necessary strategic signal leadership to achieve information superiority in the AAN.

TABLE OF CONTENTS

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...and it ought to be remembered that there is nothing more perilous to conduct, or more difficult in its success, than to take the lead in the introduction of a new organization.

—MACHIAVELLI

As the United States approaches a new millennium, the US Army is undergoing its most dramatic change in over half a century. This change, prompted by the demise of the Soviet Union and end of the 40-year Cold War, is being broadly defined as the next Revolution in Military Affairs (RMA). Fueled by leap-ahead advances in information technologies, this emerging RMA is centered around sophisticated information systems, precision-strike munitions, and automated C4 systems, more commonly referred to as a "system of systems."[1] Speaking of the RMA, Secretary of Defense Cohen in the 1997 Quadrennial Defense Review (QDR) concluded:

> the information revolution is creating a Revolution in Military Affairs that will fundamentally change the way U.S. forces fight. We must exploit these and other technologies to dominate in battle...that will ensure our domination of the battlespace in 2010 and beyond.[2]

The recent drawdown of our armed forces—concurrent with the explosive growth, proliferation, and availability of information technologies along with the advent of the Internet—has given rise to a new age of information and knowledged-based warfare.

The Force XXI Division Army Warfighting Experiment (DAWE) in November 1997 affirmed that information superiority has emerged as a key enabler for battlespace dominance in the Army After Next (AAN). Consequently, the Army has begun the process of restructuring its primary warfighting organization — the division — as it prepares to face new and unprecedented challenges in the 21st century.

At the center of this organizational restructuring is the need for a new principal staff officer – the Division G6. This study examines the pivotal role of the Division G6 as a strategic planner and integrator of command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) systems in the AAN. The study finds that establishment of a principal staff element at the division level for C4ISR systems planning and integration is essential for leveraging Information-Age technologies and providing the strategic signal leadership necessary to achieve information superiority. The study discusses the changing nature of warfare and examines the future role of the US Army Division as a strategic land force. It reviews the Army's concept for achieving information superiority and discusses emerging joint and Army doctrine governing information operations. Finally, the study concludes with recommendations to improve future command and control at the division level.

BACKGROUND

The United States Army of 1999 is unquestionably a fundamentally different force than the 1989 pre-Desert Shield/ Desert Storm Army. It is now an axiom that the Information-Age Army of 2015 will be dramatically different from today's Army. While it is virtually impossible to determine precisely how the 2015 Army will be structured, the inexorable shift towards an information warfare paradigm clearly indicates that, regardless of the eventual force structure design, C4ISR systems will play a crucial role in future military operations.

Over the past decade, the explosive proliferation of information-based technology and processes, and the military's increasing ability to collect, process, disseminate, protect, and act upon information at unprecedented speed, has forever changed the conduct of warfare at every level.[3] As our Army evolves from a forward-deployed, threat-based force reflective of the Cold War industrial era that created it to a force-projection, knowledge-based force, it is challenged to design relevant new organizational structures that will effectively and efficiently leverage information technologies to meet the full spectrum of envisioned AAN operations.[4]

To date, the brigade-based US Army Division has been designated as the Army's primary warfighting organization which

will serve as the foundation upon which to build the future Army.[5] In discussing the future role of the Army Division, Former Training and Doctrine Command (TRADOC) Commander General Hartzog asserted:

> I am sure that the division is here to stay. The sustained support and conduct of independent combat operations across the spectrum and within a combined and joint environment will remain the heavy division's *raison d'être*...Although smaller formations may, at some time or for a short time, operate independently, the division is likely to remain the dominant force exercising command, control, direction and sustainment of military operations in any theater into the next century. [6]

Even so, some have suggested that the current division structure is inadequate for the Information-age battlefield, primarily due to its size, transportability, and logistical support requirements. These critics have thus called for its demise in favor of standing brigade task forces.[7] Additionally, in attempting to identify optimal organizations for future warfighting, the Army is currently experimenting with another force structure design called "Strike Force."[8] Although future warfighting force structure designs will be continuously deliberated at the senior levels of our Army, programmed force modernization for the foreseeable future calls for digitizing an Army Division by the end of year 2000 and an Army Corps by the year 2004. Such plans for digitized divisions tend to lend credence to General Hartzog's prediction.

In attempting to define the future threat environment, most analysts agree that the United States will not face a peer competitor in the near term. However, between now and 2015, our armed forces will likely face a multitude of unconventional and asymmetrical threats on a global scale; they will be unpredictable, complex, and potentially violent in nature.[9] To adapt to these and other envisioned threats, Force XXI and AAN warfighting concepts have been designed to provide full spectrum dominance and global battlespace awareness.

The guiding vision for achieving full spectrum dominance is the Chairman of the Joint Chiefs of Staff's Joint Vision 2010 (JV 2010). This document sets forth the Chairman's blueprint for future military operations. To succeed in these operations, our forces will need information superiority—the capability to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary's ability to do the same.[10] That is, information superiority is becoming a fundamental enabler for achieving full spectrum dominance. Gaining and maintaining information superiority in future combat operations and contingencies will be as important, if not more so, than air superiority and naval supremacy have been in the past.

In the AAN Division, the new doctrinal concept of distributed operations—those activities, functions, and

operations executed simultaneously or sequentially throughout the height, width, and depth of an area of operations against a framework of decisive, shaping and sustainment operations—will require superior battlespace situational awareness.[11] Distributed operations apply to all military actions—offense, defense, stability and support—and are supported through an integrated digital network of sophisticated, robust, and secure C4ISR systems.[12] For an Army previously focused on the defeat of former Soviet Union mechanized military forces on a European linear battlefield, this new warfighting doctrine presents considerable challenges for the force.

Thus, the future division must be resourced with adept staffs and adequately structured to effectively plan, integrate, prioritize, and execute the dynamic activities and functions of distributed operations. And this new division must be capable of supporting continuous, simultaneous information operations across the entire spectrum of conflict. However, at a time in which our Army has become virtually reliant upon automated communications and information systems for mission planning and execution, there is currently no principal staff organization at the division level to plan, integrate, and manage these new technological systems and capabilities.[13] Although C4I systems have undergone an enormous technological transformation over the past decade, the central process of division command and

control—and the staff functions and operations that enable it—have remained virtually unchanged. In her monograph Evolutionary Technology in the Current Revolution in Military Affairs, CPT Elizabeth Stanley aptly observes that "we have witnessed the impact of information technology on warfare, but we have not yet seen the subsequent transformation of operations and organizations...(without which) these battlefield C4I systems cannot embody the postulated RMA."[14] I propose that the dynamic Information-Age battlespace of the future, in which the AAN Division will operate, demands a new and innovative staff organization for C4ISR planning and integration.

Achieving Information Superiority

> The Army's ability to use information to dominate future battles will give the United States a new key to victory, I believe, for years, if not for generations to come.
>
> —William S. Cohen
> Secretary of Defense

With the ushering in of the Information-Age, information has become the linchpin for success in future military operations. In discussing the significance of information superiority in his 1998 Annual Report to Congress, the Secretary of Defense identified information superiority as the 'backbone' which will enable the U.S. to respond rapidly to any conflict and warfighters to dominate any situation with accurate, timely, and

secure information.[15] Triggering a paradigm shift in the conduct of military operations, communications, intelligence, and information systems and processes are revolutionizing the role of C4I on the battlefield.

Seamless interoperability and integration of C4I capabilities, along with those for surveillance and reconnaissance, have become the latest Department of Defense (DoD) concepts for attaining full battlespace dominance for the Joint Task Force (JTF) commander through leveraging enabling information technologies.[16] The rapid growth of communications, intelligence, and information systems and technologies has led to the merger and inextricable linking of these functional capabilities. This new concept for ensuring Joint Force information superiority on the future battlefield is called C4ISR. The concept realigns the gathering, processing, and disseminating components of surveillance and reconnaissance, and integrates these functions with supporting C4I systems to provide timely, concise, and relevant information to the warfighter.[17] Effective integration and management of these emerging C4ISR systems and capabilities will be essential for attaining full battlespace dominance in the AAN.

Along with C4ISR, DoD's strategy for improving and protecting the reliability and survivability of information and information systems is encompassed in its emerging joint

doctrine of "Information Operations" (IO).[18] IO, an essential component of information superiority, are actions taken to affect adversary information and information systems while defending one's own information and information systems—and which requires continuous integration of offensive and defensive capabilities and activities.[19] Achieving information superiority on the future battlefield will require continuous integration of an aggressive and thoroughly coordinated IO strategy supported by a dynamic, secure, and robust network of C4ISR systems. As these systems and capabilities evolve, so will the requirements for systems planning, integration, management, and administration.

Achieving information superiority involves much more than simply installing, operating, and maintaining an integrated network of digitally linked intelligence, communications, and weapon systems. In addition to establishing seamless and robust C4ISR systems to support the Joint Task Force Commander's concept of operations and intent, gaining and maintaining information superiority involves implementing systematic and continuous IO procedures and processes prior to and during conflict and post-conflict operations. These actions must be designed to assure unimpeded access to relevant information systems while impeding or denying an adversary's access and use of his own systems. In an era of increasing asymmetrical

threats and MOOTW, achieving information superiority is fundamental to successful military operations. Just as with its principal predecessors, sea and air power, gaining and maintaining information superiority will be a precondition for future warfare.

The 21st Century Battlespace

> While the core of the twentieth century land warfare has been the tank, the core of the twenty-first century will be the computer.
>
> —General Gordan Sullivan
> CSA (1993)

Completely unpredictable, exceedingly complex, and extremely lethal—these characteristics describe the 21st century battlespace, where war will be waged in an ambiguous global political environment. We will by then have witnessed an almost unbounded worldwide growth and availability of communications, information, and weapon systems technologies. This newly defined battlespace will consist of highly mobile, dispersed, and fully integrated land, sea, air, and space forces, supported by a boundless information grid of sophisticated sensors, sensor-to-shooter engagement platforms, and robust joint C4I systems. Information superiority will enable the JTF commander to completely dominate force adversaries.

Substantially increased precision-strike munitions ranges, advanced sensor technologies, seamless C4I systems, and emerging battlespace visualization systems are combining to create an extremely lethal battlefield. We can safely assume that as a result of the monumental success of U.S. military air and ground offensive operations during the Gulf War, future adversaries will not challenge the U.S. in traditional, conventional operations. Rather, our adversaries will seek new and asymmetric ways to challenge U.S. interests and military forces. Steven Metz of the US Army War College Strategic Studies Institute predicts that "The challenge the US Army faces in coming decades is that its unquestioned superiority at mobile armored warfare will decline in strategic significance as aggressors develop techniques that cannot be countered by armored and mechanized divisions...Desert Storm is not a prototype for all future wars."[20]

The 1990-91 Gulf War marked a watershed in modern military operations, especially in the increased reliance on space-based communications and information systems for C2. Widely regarded as the first information war, military operations during DS/DS reflected the vast technological advances and advantages of intelligence, automation and communications systems, leading to operations that were much more interconnected, quicker reacting, and more flexible.[21] Given such capabilities, we can anticipate

that the boundaries between strategic and operational decision-making will blur and new centers of gravity will emerge. The traditional distinctions between the strategic, operational and tactical levels of war will merge, and the combat area will be more complex and difficult to delineate.[22]

These trends indicate that in future operations, U.S. Army forces will rarely deploy and operate unilaterally. Rather, future conflicts will most likely occur in environments similar to those of Operations Urgent Fury, Just Cause, Uphold Democracy, and Joint Endeavor——joint, combined, multinational, small-scale contingencies requiring rapid, adaptive planning and decision-making. It is very likely that they will be conducted in coordination with Host Nation Support (HNS), interagency, and non-governmental organizations (NGO) and private voluntary organizations (PVO). We can reasonably expect that these operations will normally be "contingency in character, temporary in nature, and conducted with an objective of restoring peace and stability as rapidly as practicable with the minimum application of force."[23]

The Future US Army Division

The US Army division is recognized globally as the preeminent strategic military land power force in the world. Advances in technology have greatly enhanced its operations at

all levels and significantly improved its lethality, deployability, sustainability, and survivability. Its unequivocal success during combat operations in Panama and Southwest Asia secured its position as a relevant force for the 21st century battlefield. Capable of worldwide strategic deployment and of conducting sustained independent combat operations across the entire spectrum of conflict, the U.S. Army division is America's force of choice for exhibiting and demonstrating United States commitment and resolve.

Originating with passage of the National Defense Act of 1916, the US Division evolved from the First Expeditionary Division of WWI to the current Army of Excellence (AOE) division of today.[24] During this time, the division has been restructured several times—from the square division of WWI, to the triangular division of 1940, to the pentomic division of 1957, to the Reorganization Army Division (ROAD) of 1964, to today's AOE division, which may be tailored and equipped as armored, mechanized, infantry, airborne, and air assault divisions.[25]

The doctrinal shift toward restructuring the AOE division began in August 1994 with the publication of TRADOC Pamphlet (PAM) 525-5, Force XXI Operations.[26] A new concept of distributed-operations doctrine emerged to replace AirLand Battle doctrine. Through C4I links to national and/or theater assets and enhanced by organic surveillance and reconnaissance

systems and capabilities, this new concept will allow Division XXI (DXXI) forces to habitually operate over a significantly larger area of operations—120 x 200 km area, compared with the 100 x 100 km sector for today's AOE division.[27]

As a strategic element of U.S. national military power, the Army Division must be capable of conducting operations as both a joint force land component command element or as an Army Forces JTF component.[28] Recent and ongoing military contingencies and operations in Grenada, Panama, Saudi Arabia, Somalia, Rwanda, Haiti, and Bosnia attest to the division's versatility. Such operations require extensive C4I planning and coordination, not only with US forces, but also with coalition and multinational forces that may not possess state-of-the-art C4I systems, or possess C4I systems that are incompatible with US systems. As technology expands, this problem of mismatched systems will only become greater.

As the Army evolves to a knowledge-based, full-dimensional force projection force, the rapid diffusion of information enabled by technological advances challenges the relevance of traditional organizational and management principles.[29] The sequential, linear, deliberate decision-making and planning process of today's AOE Army will be replaced by simultaneous, interactive planning and execution dramatically affecting force operational tempo. To ensure success in future operations, the

AAN division must be organized, structured, and appropriately staffed to plan, integrate, employ, and exploit the multitude of emerging information and technological capabilities across the full spectrum of conflict.

The Case for the Division G6

> Command and control involves a good many things that you don't normally think about: an organization for decision-making; a structure that you hold inviolate for the transmission of instructions; and people who understand the mission, who are drilled in the doctrine and the procedures that constitute teamwork.
>
> —Richard G. Stilwell
> (C2 - The Literature and Commentaries)

The success of any military operation, regardless of scope and complexity, is inherently dependent upon effective command and control, enabled by reliable communications. The importance of command and control can best be appreciated by considering the consequences of its failure. Joint Pub 6-0 defines command and control (C2) as:

> The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission.[30]

This definition indicates that C2 functions are performed through an arrangement of personnel (staff) and supporting communication systems (C4). Over time, as communication and automation systems and capabilities evolved and merged with those of intelligence, the term command and control (C2) expanded to include communications (C3), intelligence (C3I), computers (C4I), and currently to include the functions of surveillance and reconnaissance (C4ISR). This expanding role and corresponding technology reflects the enormous growth and complexity of C4ISR systems within our armed forces, as well as the intricate planning, engineering, and integration efforts of the communications staff to provide effective C2 support to the division commander, his staff, and major subordinate commanders. But can a single staff function be expanded indefinitely without becoming dysfunctional? More importantly, is the current signal staff structure at the division level relevant for envisioned C4ISR operations in the AAN? Before we attempt to answer these critical questions, let's consider division staff structure more generally.

Despite leap-ahead advances in digital communications, automation, and information systems and technologies and the ever-increasing importance and complexity of C4I planning for joint, combined, and multinational contingencies and operations in a force projection Army, the division signal and automation

planning staffs have remained virtually unchanged since inception. Contrary to the other principal staffs—Assistant Chief of Staff, G1 (Personnel); Assistant Chief of Staff, G2 (Intelligence); Assistant Chief of Staff, G3 (Operations); and Assistant Chief of Staff, G4 (Logistics)—C4I planning still resides within the division special staff, with overall responsibility assumed by the Division Signal Battalion Commander in his dual-hatted capacity as the Division Signal Officer. The absence of a centrally integrated principal staff for C4I has generally led to fragmented proponency for information and automation systems within the division, and resulted in disjointed efforts to integrate automation functions, systems, and capabilities. This problem continues to inhibit the optimum application of C4I and applicable information technologies, and is currently exhibited in the fielding of Army Battle Command Systems (ABCS).[31]

Normally represented by two special staff officers in the rank of major—the Assistant Division Signal Officer (ADSO) and the Division Automation Officer (DAMO)—these officers and their staffs provide communications and automation planning and support for the division. These officers informally coordinate with the other staff principals. But unlike the other staff principals who report directly to the Division Chief of Staff, the ADSO and DAMO work for the Division Signal Battalion

Commander. While this staff structure has been successful in the relatively well-defined, voice communications-enriched, AirLand Battle doctrine environment, its continued relevancy is indeed doubtful. In his observations of staff operations during the November 1997 DAWE, COL Steve Garrett declared:

> Information-age commanders face dramatic new decision-making dynamics not matched by current deliberate decision-making staffs. During the DAWE, staffs and commanders were flooded with accurate data, dramatically changing information process dynamics. Frenzied staffs tried to keep up with the accelerating information flow in radically compressed timelines...[leading him to conclude that] existing staffs - cannot keep pace.[32]

The signal and automation planning staffs did not escape the frenzy. Participants and observers at the DAWE concluded, "the ADSO was simply overwhelmed."[33] These observations strongly suggest that this present staff structure will not be capable of supporting the dynamic digital information systems planning, integration, and data management requirements of distributed operations in the envisioned Information-Age battlespace of the AAN.

Reviews of C2 After Action Reports (AAR) and Lessons-learned (LL) from some of our Army's more recent contingency operations and conflicts provide insight for C4I planning and execution in future operations. I believe that Operation Urgent Fury in Grenada in 1983 first revealed the need for a Division G6 on the modern division staff. Planning for this operation,

mired in secrecy by the operational planners, failed to involve any communications planners at any level.[34] Although unique service communications equipment incompatibility contributed to many of the subsequent C2 problems, the much-publicized communications debacle was not, in my opinion, caused by a lack of communications for C2. Rather, the debacle, through no fault of the signal planning staffs, resulted from a lack of communications planning and coordination. In essence, the signal officer was not provided a 'seat at the table.' Only through extraordinary, innovative efforts of some exceptional tactical leaders and operators on the ground was total disaster and loss of life avoided.

The subsequent success of communications during Operation Just Cause in Panama in 1989 indicated that the C2 shortcomings of operations in Grenada had been remedied. Although significant improvements in C4 systems and equipment interoperability were achieved, the operation was primarily a unilateral Army effort that did not involve coalition forces, with operational planning beginning as early as 22 months prior to commencement of operations.[35] Therefore, a true assessment of joint contingency C4I planning and execution effectiveness at the division level is not possible.

Operations in Somalia, a decade removed from Grenada, revealed that JTF C2 problems resulting from C4I planning and

equipment interoperability between US forces and multinational contingents, while not on the magnitude of Operation Urgent Fury, still existed.[36] During UNISOM II, despite the presence of US forces in the area of operation for several months prior to mission handoff, the J6 communications staff was not assigned to the JTF early enough to influence communications planning.[37] This resulted in multiple C4I planning and coordination problems for the Army land component task force. The most serious interoperability problem however, occurred between Army forces on the ground and Navy ships offshore. For three weeks, the Army hospital in Somalia was unable to communicate with the offshore hospital ship, and Army medical evacuation pilots were not cleared to land on the ships.[38] These and other shortcomings are magnified by the fact that they occurred during noncombat phases of the operation.

Operation Uphold Democracy in 1994, clearly the largest and most complex Joint Task Force contingency operation in recent history, could have provided an insightful view of joint C4I planning and execution at the division level.[39] However, the operation ended before the complete plan was executed.

These types of joint and combined operations reveal the scope and level of complexity inherent in future joint communications and information systems planning, integration, and execution at the division level. Moreover, implementing

emerging digital communications, information, and weapon systems technologies will further add to the complexity. As we have painfully learned in Grenada and during other joint contingency operations, the dynamic nature of military operations in the 21st century will require a paradigm shift in division communications and automation systems planning, integration, and management.

C4ISR Challenges in the AAN

C4ISR planning provides the JTF commander, his staff, and subordinate commands with the means to C2 their forces during all operational phases—from predeployment, while enroute to the objective area of operations, during conflict and post-conflict operations, and through redeployment. The varied conditions under which the Army will be employed in the Information-Age requires close C4ISR and IO coordination, integration, and synchronization from the strategic to the tactical level. Throughout all force-projection stages, decisive military operations will be dependent upon C4ISR systems and capabilities that provide the means to transport information from CONUS-sustaining base installations through strategic gateways and entry points to the most forward-deployed units.

The C4I challenges facing today's signal planners were not even envisioned ten years ago. The rise of the minicomputer and microprocessor revolutionized military and commercial

communications systems creating a new "killer app."[40] The fielding of ABCS and the Global Command and Control System (GCCS),[41] along with such enabling technologies as video teleconferencing (VTC), asynchronous transfer mode (ATM) switching, fiber optics, multimedia systems, signal compression, Global Broadcast System (GBS), Unmanned Aerial Vehicles (UAV), data routers, Tactical Internet, Telemedicine, personal digital communications devices, satellite-based telephone and wireless networks, email, and the commercial Internet——are but a few of the many challenges the division signal planner has to contend with.

In addition to integrating emerging enabling digital technologies into the division's communications architecture, signal planners are also challenged with issues such as C4ISR systems engineering and integration, electromagnetic spectrum supremacy, multi-level systems security, bandwidth control and management, Local Area Network (LAN) and Wide Area Network (WAN) management, military and commercial data systems administration, IO C4I support, and the requirement to integrate other joint, coalition, interagency, host nation, and NGO and PVO communications systems and requirements. When considering these challenges and the continuous unbounded growth in information systems technologies, it becomes indisputably obvious that the

current signal staff will be inadequate for C4ISR systems planning, integration, and management in the AAN.

The sophistication and complexity of current and future C4ISR systems operating over a significantly expanded battlespace, compounded by an ill-defined and unpredictable strategic global environment, demands a principal staff organization at the division level to plan, coordinate, integrate, prioritize, and manage these systems for effective C2. In current and future operations, communications planning can no longer be assumed as a routine. In fact, the requirement for information superiority will demand that all other operational planning center around the capabilities of C4ISR systems. This process will inherently involve staff planning at the division level by an experienced and technically diverse C4ISR staff on the magnitude of today's ACofS, G3 staff.

To ensure successful C4ISR systems planning and integration, the new staff principal, the Assistant Chief of Staff, G6, must have the requisite operational command and staff experience and strategic judgment to establish credibility and provide the leadership required to execute and manage the multiple and complex C4ISR tasks for future operations. As stated by LTG (Ret) Peter Kind, former Army Director of Information Systems for C4 (DISC4) and Chief of Signal, "the signal staff officer at the division must be technically astute

as well as operationally aware...and he must be 'in the wire with the G3'."[42] The G6 must also share peer status with the other staff principals. Therefore, it is imperative that the future ACofS, G6 come from the OPMS XXI[43] operational career track and be a former signal battalion commander. And to ensure division staff synchronization, the G6, like the other staff principals, must work for the Chief of Staff.

As the Army develops its baseline staff structure for DXXI and Army XXI, and as OPMS XXI is refined, now is the best time to begin outlining the professional development career path for future ACofS, G6s to ensure these officers attain the necessary military education, technical training, and operational experience to provide effective strategic signal leadership for C4ISR operations on the AAN battlefield.

Division XXI - The First Step

The May 1997 FM 101-5 elevated communications planning on the division staff from special staff to primary staff. For the first time, it established the ACofS, G6 as a principal staff officer.[44] This important first step, initiated primarily as a result of DAWE observations and the Warfighter Information Net (WIN) integration effort, provides a baseline for defining the role, functions, and responsibilities of this new staff section.

The US Army Signal Center's (SIGCEN) Force Modernization Strategy for an integrated C4 network composed primarily of commercially-based, high technology information and communications systems is designated WIN.[45] WIN is designed to dramatically increase the velocity of information distribution throughout the battlespace in order to assure information dominance over a potential adversary. As envisioned, WIN will maximize the information services for the warfighter from the sustaining base to the fighting platforms. Successful planning, implementation, and management of WIN and C4I modernization is contingent upon successful integration of G6 and S6 sections into the division, brigade, and battalion staff structures.[46] Most importantly, WIN integration will provide the G6 with C4I operational capabilities to support FORCE XXI Information Operations.

In outlining staff organizations, FM 101-5 cites several factors for consideration, such as: size and diversity of responsibilities; the availability, knowledge, and qualifications of personnel; and the desired span of control.[47] Considering these factors, the staff composition specified for the ACofS, G6 to support the implementation and management of WIN, while representing an important evolutionary step in meeting the digital information systems integration and management challenges of DXXI, must evolve beyond merging the

existing ADSO and DAMO sections. Along with including additional automation personnel to support current and evolving C4I digital systems and capabilities, this staff must be structured with an adept, experienced and robust staff capable of assuming total proponency for integration and management of all automation and information systems within the division.

Staffing the division G6 with another Signal Corps LTC to achieve parity with the other division staff principals is another important and necessary step. But if this officer does not have the necessary operational command and staff experience, and does not have the independent authority to plan, coordinate, integrate, prioritize, and implement C4I systems in support of the Division Commander's operational concept and intent, the desired staff parity will not be achieved. Instead, the ACofS, G6 will be elevated to division staff principal in title alone; C4I planning and integration will retain its special staff status; and the critical paradigm shift that is essential for future C4ISR operations will not occur. As aptly stated by LTG (Ret) Robert Gray, former DCINC, US Army Europe, and Chief of Signal, "If you put a G6 on the division staff, you need to give him the tools to be successful...this means he must be a FBC and a MEL 1, and he has to work for the Chief."[48]

The division G6 must be structured with the primary objective of providing strategic signal leadership to

effectively synchronize C4ISR operations across the force. Staffing the G6 with a LTC, but maintaining the current staff arrangement, will essentially only extend the AOE division signal staff structure, and therefore will not adequately support the warfighter's C2 requirements on the future battlefield. As stated by authors Downes and Mui, "unleashing killer apps requires not only the appropriate technology...but the corporate will to make the big leaps and to bridge the gap between incrementalism and exponential change."[49]

Maintaining the Status Quo - Opposing Viewpoints

Despite the compelling reasons offered for change in the division signal staff structure, Army leaders will encounter considerable resistance to change. The most frequent reason offered for maintaining the status quo is that in recent and ongoing military contingencies and operations, communications support has generally been successful, clearly contributing to mission success. In addition, some argue that establishing a principal staff for C4I at the division level, staffed by yet another Signal Corps LTC, would prove divisive, detracting from signal unity of effort. They contend this addition will undermine the authority of the Division Signal Battalion Commander, who—as the Division Signal Officer—is ultimately

responsible for C2 support to the division commander and his staff.

These objections have some merit and cannot simply be discounted. However, in-depth analysis of AARs from recent and ongoing military operations reveals that C4I planning and execution at the division level has not been completely unproblematic. While most communications missions have generally been characterized as successful, this success has often required significant unplanned external support from other military communications entities—Corps Signal units, Army Signal Command units, and DoD agencies—supplemented by substantial commercial and host nation communications systems. Further, with the exception of Operations Urgent Fury and Just Cause, these operations have generally been initiated in unopposed, permissive operational environments with sufficient time for build-up of C4I systems and capabilities prior to the commencement of hostilities. This is not a luxury we can expect on the highly lethal, future digital battlefield. A review of the communications infrastructure and C4I support in the ongoing operation in Bosnia reveals that such operations extend far beyond the organic C4I systems planning and integration capabilities of the current division signal staff.[50]

Further, we should anticipate that future operations in a vastly expanded battlespace will exceed the complexity of any

past operation on an order of magnitude beyond that which we can envision today, calling into question the limited span of control principle for the Division Signal Battalion Commander.[51] The number of simultaneously occurring battlespace events along with the complexity inherent in joint and combined digital communications and information systems planning in a dramatically compressed division planning cycle, makes it physically impossible for any single decision-maker to respond.[52] Issues of command presence, force protection and sustainment, current and future operations planning and execution, and rapidly changing battlespace dynamics requiring on-site command leadership and direction, will greatly inhibit the Signal Battalion Commander's supervision of division C4I systems staff planning and execution. General Franks, former US Army Training and Doctrine Command Commander states "Because land combat will continue to be tough, brutal, and full of friction and with unpredictable enemies, commanders will want to be on the battlefield with their troops and not in their CPs. They need to be up front."[53]

Would another Signal Corps LTC serving as the ACofS, G6 prove divisive and undermine the authority of the Division Signal Battalion Commander? Rather than proving divisive, if the division G6 were established as proposed in this study, this new staff organization would unify and solidify the C2 effort

across the division. Just as in the personnel, intelligence, and logistics communities where the combined efforts of the principal staff officer and the supporting commander effectively supports the personnel, intelligence, and logistical support requirements of the Division Commander and his staff, the ACofS, G6 and the Division Signal Battalion Commander would do the same for C2.

The ACofS, G6, like his peers on the division staff, is a staff officer, not a commander, and must be viewed as such. He is not in competition with the Division Signal Battalion Commander, and therefore, will not diminish the traditional command role of the battalion commander. As with the other principal staff officers, the G6 is responsible for coordinating, integrating, prioritizing, and executing C4ISR systems planning at the division level under the direction of the Division Chief of Staff. He will accomplish these tasks through close coordination and consultation with the Division Signal Battalion Commander in the commander's dual-hatted capacity as the Division Signal Officer. As such, the Division Signal Battalion Commander retains control of all division signal assets along with responsibility to execute C4I systems installation, operation, and maintenance. Additionally, along with his traditional command responsibilities, he remains the division proponent for all signal officer management and

professional development within the division. Through his Command Sergeant Major, he accomplishes the same for Signal Corps Non-Commissioned Officers and enlisted soldiers.

The Division Signal Battalion Commander retains his command relationship with the division commander just like other supporting commanders within the division. Likewise, he continues to have overall responsibility for C2 support to the Division. However, under the ACofS, G6 staff restructuring, the C4ISR planning, integration, and systems administration responsibilities now rest with the division G6 staff.

As with any new staff restructuring, this new relationship will require some adjustment at the division staff level, and between the ACofS, G6 and the Division Signal Battalion Commander, especially if a former Signal Battalion Commander is assigned as the Division G6 following command. However, this command and staff relationship is not unprecedented as current division staff principals are routinely assigned to their positions immediately following battalion command and/or completion of Senior Service College. Additionally, Division Commanders and Chief of Staffs will also play a critical role in defining C2 functions and responsibilities of these two officers.

There are some potential pitfalls, however, as this new relationship between the Division G6 and Division Signal

Battalion Commander involves some technical staff aspects and considerations not normally dealt with by other staffs and commanders. As such, a higher degree of professionalism, trust, cooperation, and teamwork is essential for success. And the relationship must rise above personalities. As the division G6 position evolves, and roles, functions, and responsibilities are refined, improvements in C4ISR planning and integration across the division in all operations and environments should increase exponentially.

Finally, rapidly changing information technology and exploitation, an expanded battlespace comparable to that occupied by an AOE Army Corps, and an ambiguous global environment with emerging ill-defined threats will demand that the division C4I planning staff evolve to remain a relevant staff in the future. We must recognize that change is inevitable and necessary to ensure future mission success in this new high-tech global environment. Failure to seize the initiative to adequately restructure and define this new staff organization under signal auspices risks having to react to externally directed changes and/or possible absorption of emerging C4I functions into another principal staff.[54] Properly deliberated, timely evolutionary change from within the organization keeps it alive, effective, and vital.

Conclusion and Recommendations

In future operations, achieving and maintaining information superiority and thus battlespace dominance across the entire spectrum of conflict will require leveraging all of the enabling technologies of C4ISR. The 21st century battlespace—characterized as completely unpredictable, exceedingly complex, and extremely lethal, along with the continued virtually unbounded worldwide growth and availability of digital communications and information systems technologies—demands that our Army review its C4I staff structures at all levels, especially the division.

As America's force of choice for exhibiting and demonstrating United States commitment and resolve, we can anticipate that the Army division will remain our primary warfighting organization well into the next century. To ensure it remains the preeminent landpower force in the world, we must make sure that it has the requisite C4ISR planning staff to enable it to achieve and maintain information superiority.

Achieving information superiority will require the strategic signal leadership of the division G6 to effectively and efficiently leverage the current and emerging enabling technologies of C4ISR. In a paradigm shift, the warfighter will come to regard C4ISR as one of the most important weapons in his arsenal. Establishing the ACofS, G6 as a principal staff for

all matters of C4ISR systems planning, integration, and management is the first critical and necessary step in this revolutionary process.

(Word count; 7021)

ENDNOTES

[1] Elizabeth A. Stanley, Evolution, Technology in the Current Revolution in Military Affairs: The Army Tactical Command and Control System, U.S. Army War College Strategic Studies Institute, March 1998, 9.

[2] Office of the Secretary of Defense, Report of the Quadrennial Defense Review (Washington, DC, May 1977), iv, v.

[3] Office of the Assistant Secretary of Defense, C4ISR Handbook for Integrated Planning (Washington: U.S. Department of Defense, April 1998), 1-3.

[4] Stephen F. Garrett, "Evolving Information-Age Battle Staffs," Military Review (March-April 1998), 28. In his article, Colonel Garrett proposes organizing battle staffs around situational awareness, synchronization, and systems administration rather than the traditional personnel, intelligence, operations, and logistics templates in use today.

[5] William W. Hartzog and James G. Diehl, "Building the 21st-Century Heavy Division", Military Review (March-April 1998), 92.

[6] Ibid., 94

[7] Douglas A. Macgregor, Breaking the Phalanx: A New Design for Landpower in the 21st Century (Westport, CT: Praeger Publishers, 1997), 67.

[8] For a recent review of the Army's plans for Strike Force, see Sean D. Naylor, "Army Unveils Strike Force Blueprints," Army Times, 1 March 1999, 8-9. Also see Steven Komarow "Army Forces to See Major Restructuring," USA Today (February 16, 1999), 1A.

[9] Claudia Kennedy, The Age of Revolutions. The Letort Papers, (U.S. Army War College Strategic Studies Institute, 10 March 1998), 15. In her monograph, LTG Kennedy, the Army Deputy Chief of Staff for Intelligence, addresses potential adversarial challenges to U.S. national security and national interests in the 21st century.

[10] Department of Defense (DOD), Chairman of the Joint Chiefs of Staff (CJCS) Concept for Future Joint Operations: Expanding Joint Vision 2010 (May-June 1998), 21.

[11] Billy J. Jordan and Mark J. Reardon, "Restructuring the Division: An Operational and Organizational Approach," Military Review (May-June 1998), 21.

[12] Ibid., 20.

[13] Signal and automation planning in the Army's 10 Divisions is currently conducted under two special staff sections—the Assistant Division Signal Office and the Division Automation Office. FM 101-5, Staff Organization and Operations, 31 May 1997 established the Assistant Chief of Staff, G6 as a primary coordinating staff officer at the grade of 05. However, discussions with the U.S. Army PERSCOM Signal Corps Assignments Branch in December 1998 indicated that no Signal Corps LTCs have been assigned to any of the Division's ACofS, G6 positions.

[14] Stanley, 52.

[15] Report of the Quadrennial Defense Review, 39.

[16] Ibid., 39, 40, 44.

[17] C4ISR Handbook for Integrated Planning, 1-3.

[18] Joint Chiefs of Staff, Joint Doctrine for Information Operations, Joint Chiefs of Staff Publication 3-13 (Washington: 9 October 1998).

[19] Ibid., I-9.

[20] Steven Metz, William Johnson, et. al., The Future of American Landpower: Strategic Challenges for the 21st Century (Strategic Studies Institute, US Army War College, March 1996), 16.

[21] Paul Braken, "The Military After Next," The Washington Quarterly (Autumn 1993), 162.

[22] Frederick R. Strain, "The New Joint Warfare," Joint Forces Quarterly (Summer 1998), 37. This article was originally published in Joint Forces Quarterly (Autumn 1993).

[23] Carl Stiner, Report of the Senior Working Group on Military Operations Other Than War (OOTW), Advanced Research Projects Agency Defense Technical Information Center (May 1994), II-8.

[24] Hartzog and Diehl, 91-92.

[25] Ibid., 92.

[26] Department of the Army, Force XXI Operations, TRADOC Pamphlet 525-5 (Fort Monroe, VA: Headquarters TRADOC, 1 August 1994), i.

[27] Jordan and Reardon, 20-21.

[28] Department of the Army, Operations, Field manual 100-5 (Washington, DC: U.S. Department of the Army, June 1993), 4-1 - 4-5.

[29] TRADOC PAM 525-5, 1-5.

[30] Joint Chiefs of Staff, Doctrine for Command, Control, Communications, and Computer (C4) Systems Support to Joint Operations, Joint Chiefs of Staff Publication 6-0 (Washington: 30 May 1995), GL4-5.

[31] ABCS (Army Battle Command System) is the U.S. Army's objective C4I system for command and control consisting of three primary C4I subsystems: Army Global Command and Control System (AGCCS), Army Tactical Command and Control System (ATTCS), and Force XXI Battle-Command Brigade and Below (FBCB2). AGCCS and ATCCS systems are currently being fielded throughout the Army.

[32] Garrett, 28-29.

[33] These general observations and others similar to Colonel Garrett's were shared during seminar discussions at the U.S. Army War College in February 1999 by former 4ID battalion commanders and staff officers who participated in and/or observed the November 1997 DAWE.

[34] U.S. Army War College, Operation Urgent Fury-Grenada 1983 Case Study (Advanced Warfighting Studies Program, USAWC, 5 January 1998), 35. Also see Ronald H. Cole, Operation Urgent Fury-Grenada, Office of the Chairman of the Joint Chiefs of Staff, Joint History Office, (Washington: July 1997).

[35] U.S. Army War College, Operation Just Cause - Panama 1989 Case Study (Advanced Warfighting Studies Program, USAWC, 5 January 1998), 61.

[36] Kenneth Allard, Somalia Operations: Lessons Learned, Institute for National Strategic Studies (National Defense University Press, January 1995), 62, 77-82. Also see C. Kenneth Allard, "Lessons Unlearned: Somalia and Joint Doctrine," Joint Forces Quarterly (Autumn 1995), 105-109.

[37] Ibid., 43.

[38] Ibid., 81-82.

[39] For an excellent overview of Lessons Learned during Operation Uphold Democracy in Haiti, see Robert E. Baumann, "Power Under Control - Operation Uphold Democracy" and John T. Fishel, "Old Principles - New Realities - Operation Uphold Democracy," Military Review (July-August 1997), 13-30. Also see Robert S. Ferrell, "Operation Uphold Democracy: Contingency Communications and Forced Entry Operations for Haiti," Army Communicator (Winter 1995), 7-14.

[40] Larry Downes and Chunka Mui, Unleashing the Killer App-Digital Strategies for Market Dominance, (Boston, MA: Harvard Business School Press, 1998), 4.

[41] GCCS (Global Command and Control System) is DoD's comprehensive, worldwide network of systems providing the CINC staff and JTF with information planning, processing and dissemination capabilities necessary to conduct C2 of forces. The goal of GCCS is to provide a single integrated C2 system with full interoperability, vertically and horizontally, across all military services.

[42] Telephonic interview with LTG (Ret) Peter Kind, former Army Director of Information Systems for C4 (DISC4) and Chief of Signal on 7 March 1999.

[43] OPMS (Officer Personnel Management System) XXI is the Army's new personnel management system that took effect 1 October 1998. Information on OPMS XXI can be accessed at the U.S. Army PERSCOM home page at: www-usappc.hoffman.army.mil

[44] Department of the Army, Staff Organization and Operations, Army Field Manual 101-5 (Washington, DC: US Government Printing Office, 31 May 1997), 4-16, 4-17.

[45] U.S. Army Signal Center (SIGCEN) Directorate of Combat (DCD) Briefing - Warfighter Information Network (WIN), presented

during the December 1998 Signal Symposium at Fort Gordon, Georgia.

[46] Ibid.

[47] Department of the Army, Staff Organization and Operations, 2-1.

[48] Telephonic interview with LTG (Ret) Robert E. Gray, former Deputy Commander in Chief (DCINC), U.S. Army Europe and Chief of Signal on 21 March 1999.

[49] Downes and Mui, 9.

[50] For an overview of C4I systems supporting ongoing military operations in Bosnia, see Chuck McKeever, "Bosnia C4I," Armed Forces Journal (January 1999), 38-40.

[51] Joseph McLamb, "The Future of Mission Orders," Military Review (September-October 1997), 73. In his article, McLamb explains that the limited span of control principle posits that one man or headquarters is capable of doing only so much in a given period of time—a commander who attempts to control too many units or areas of responsibility is quickly overwhelmed.

[52] Ibid., 72.

[53] Ibid., 73. McLamb quotes General Franks from his article "Battle Command: A Commander's Perspective," Military Review (May-June 1996), 19.

[54] Robert E. Pilnacek, "Reinventing SOCOM," Armed Forces Journal (January 1999), 45. In an effort to improve its efficiency, communications channels, and use of resources, U.S. Special Operations Command (SOCOM) recently completed a major reorganization of its headquarters. Under one of the more significant changes, the previous J6 (C4I) staff element was reorganized into one of five new staff centers—The Center for Intelligence and Information Operations—which encompasses previous J2 (Intelligence) and J6 (C4I) functions. Although this reorganization occurred at the CINC Headquarters level, these changes may well reflect current and future thinking at the senior leadership levels for a need to restructure traditional military staffs into Information-Age organizations.

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